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ABSTRACT

The developing countries and international agencies which possess limited human, financial and technical resources cannot hope to solve the information problems by methods similar to those of the more affluent countries. For them the solution probably lies in the establishment of co-ordinating centers for information and documentation at the national level, which would set up internal networks formed by the documentation centers and libraries existing in each country. These would be interconnected in a regional network, linked in its turn to the world network. The result would be the creation of channels for rapid flows of information, by virtue of which the adoption of political, economic and social decisions, both at the national and at the regional and subregional levels, could be properly based on a solid groundwork of data. From a practical point of view, it might be a good idea in Latin America's case to organize two networks: one specializing in economic and social information and another specializing in the fields of science and technology. (Author/NH)

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CLADES AND A FUTURE INFORMATION AND DOCUMENTATION NETWORK FOR LATIN AMERICA *

* This paper was presented at the Third Regional Congress on Documentation and the Second Meeting of FID/CLA (Lima,, 20 to 24 September 1971), by Rafael Rodríguez Delgado, Acting Director of the ECLA Latin American Centre for Economic and Social Documentation (CLADES). The opinions expressed are not necessarily those of the Commission.

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/I. INTRODUCTION

I. INTRODUCTION

1. The fact that the developed countries are investing large sums in the establishment of modern information and documentation systems, at whose service powerful technologies and resources are placed, highlights the value they set upon information regarding current events - not only in the spheres of science and technology but also at the economic and social level - both within their own territory and in the other countries with which they maintain diplomatic and commercial relations. The documentation centres concerned are equipped with numerous teams of specialists, computers and complex reprographic systems which enable them to process enormous amounts of information and distribute it selectively to consumers as economically and rapidly as possible.

2. The developing countries and the international agencies, on the contrary, possess limited human, financial and technical resources, and cannot therefore hope to solve the information problems by methods similar to those of the more affluent countries.

3. For them the solution would probably lie in the establishment of co-ordinating centres for information and documentation at the national level, which would set up internal networks formed by the documentation centres and libraries existing in each country. These would be interconnected in a regional network, linked in its turn to the world network. The result would be the creation of channels for rapid flows of information, by virtue of which the adoption of political, economic and social decisions, both at the national and at the regional and subregional levels, could be properly based on a solid groundwork of data.

4. From a practical point of view, it might be a good idea in Latin America's case to organize two networks: one specializing in economic and social information, which would be represented by the Latin American Centre for Economic and Social Documentation (CLADES) of the Economic Commission for Latin America (ECLA), and another specializing in the fields of science and technology, which could be established in connexion with

/the UNISIST

the UNISIST system of the United Nations Educational, Scientific and Cultural Organization (UNESCO) and with the United Nations programmes for the application of science and technology to development.

II. NECESSITY OF ORGANIZING INFORMATION NETWORKS

5. Among the several factors that account in general, for the necessity of organizing information networks, the following are the most important:

(a) The exponential growth of information

6. The multiplication of scientific disciplines and technical specialties which began to take place in the nineteenth century has given rise to an increasing diversification of specialized literature and, in particular, of those periodicals in whose articles the newest developments in every branch of knowledge and action are reflected with the least time-lag.

7. According to the Auger report, 1/ the following is the trend shown by the growth rate of scientific journals and periodicals:

At the beginning of the nineteenth century	100 periodicals
By 1850	1,000 periodicals
By 1900	over 10,000 periodicals
By 1960	about 100,000 periodicals
By the end of the twentieth century (projection)	1,000,000 periodicals

8. It often happens that in annual compilations containing summaries of articles on a given specialty, such as biochemistry or medicine, from 3,000 to 4,000 authors are cited, their contributions representing a volume of data that no research worker could cope with in depth, even if he were to devote his entire time to reading the articles concerned.

9. The magnitude of the problem can also be measured by the fact that a recently-published bibliography of Latin American bibliographies 2/ gives their number as 7,210, including 56 bibliographies of bibliographies, 513 bibliographical periodicals, 215 national bibliographies, and 38 bibliographies on industry and technology.

1/ See Pierre Auger, Current Trends in Scientific Research (UNESCO, Paris, Metuchen, New Jersey, 1961), p.15.

2/ See A Bibliography of Latin American Bibliographies (Scarecrow Press, 1968).

/10. In

10. In the developed countries the institutions generating information have grown equally fast. The United States Office of the Superintendent of Documents, which was established in 1895, now has 27,000 different titles for distribution. Sales of its documents have climbed from 10,500 in 1927 to over 40 million in 1950 and about 75 million in the last financial year. 3/

11. The international agencies, of which there were practically none in the nineteenth century, now number 300 official organizations established under intergovernmental agreements, 2,700 non-governmental and non-profit-making organizations, and 600 multinational enterprises, i.e., a total of 4,300 organizations, covering all fields of activity and all geographical regions. 4/ Taking into account only the more important publications of the United Nations Economic and Social Council (International Tax Agreements, World Economic Survey, Monthly Bulletin of Statistics, Commodity Trade Statistics, etc.), plus the records of its sessions and the annexes to these reports, the figure reached exceeds 20,000 pages of original-language text. 5/

(b) Increase in the number of specialized centres

12. As Auger has noted, "the number of scientists alive today is equal to 90 per cent of all the scientists and research workers who have existed since the beginning of history". 6/ These experts are congregated in specialized centres which in their turn, have increased in number exponentially, both at the scientific and technological level and in the economic and social sphere. Ministries in the various countries, national and private banks, universities and research institutes, international and regional agencies, all find themselves compelled to set up specialized centres for the efficient purchase, processing and distribution of the swelling mass of information that has to be handled.

3/ See Rowland E. Darling, "The Government Bookstore", in Special Libraries (January 1971), Vol. 62, No. 1, p.8.

4/ See Yearbook of International Organizations, 13th edition, 1970-1971 (Union of International Associations, Brussels, 1971).

5/ See United Nations, Budget Estimates for the Financial Year 1970, Official Documents, Twenty-fourth session, Supplement No.6 (A.7606).

6/ See Pierre Auger, op.cit., p.15.

/13. At

13. At the international level, such activities are being steadily intensified. Both the United Nations and its specialized agencies are currently engaged in creating information networks whose complexity is progressively increasing; hence there is a pressing need to link up and integrate the existing centres and networks, with a view to the organization of a future world network which will allow of rapid intercommunication among the various systems.

(c) Multiplication of carriers and information channels

14. The invention of writing, as McLuhan points out,7/ brought into being a means of assimilating information that was completely new in the history of man. Direct access to situations was superseded by their sequential description through the medium of linear phonetic symbols. Gutenberg's invention of printing speeded up this process of assimilation of news and knowledge, but without changing its sequential character.

15. The document, whatever it was - papyrus, parchment, or paper - had to be carried sequentially too, on foot or on horseback, by stage-coach or railway train, aboard a sailing vessel or a steamship, the physical carriers of information (books, for example) and the channel of transport (highway or shipping-line) being absolutely separate entities. The discovery of photography led to the diffusion of a different type of information, no longer sequential, but once again simultaneously transmitted, through direct visual access, so that the time required for assimilating it was reduced. The cinematographer, by putting photography into motion, provided a new carrier of direct visual information.

16. With the appearance of radio and television a revolutionary development took place: the carrier and the channel of information were made one, with the result that information from the remotest places can now be instantaneously received, and every citizen can participate, as a spectator, in the political, economic and social life of his own country and of the other peoples of the world.

7/ See Marshall McLuhan, Understanding Media (Signed Books, Chicago, 1964).

/17. The

17. The extension of the documental memory, first through the microfilm (sequential access) and then through the microfiche (direct access) has made it possible to store enormous quantities of information in a very small space. At the same time, the emergence of the punch card and of magnetic tape for computers (sequential access) and, later, of the magnetic disc and the data cell (direct access), have once again multiplied the bearers of information, opening up processing possibilities that could not have been dreamt of until now.

18. Just as the conveyance of information by wireless waves and television has made its transmission instantaneous and has unified the world by means of such techniques as artificial satellites for communications purposes, transmission capacity likewise has far outstripped the assimilation capacity of a human being, measured in relation to the same unit of time. In May 1971 the Bell Telephone Laboratories announced that by using the laser they had succeeded in transmitting one thousand million bits of information (one gigabit) in one second, i.e., the equivalent per second of some 200 books of 250 pages each. 8/

19. These fabulous technical possibilities will still further widen the gap between the developed and the developing countries. The latter will have to make an arduous and stubborn effort if they are to keep up their dialogue with the former and assimilate the knowledge which will enable them to develop.

(d) The four fundamental aspects of information

20. Information is organized under four heads: two conceptual, one geographical and one temporal. The basic conceptual aspects are the horizontal (i.e., by disciplines) and the vertical (i.e., by missions). Knowledge must be organized in disciplines or specialties so that each of its fields can be studied in sufficient depth, but the complexity of the functions entailed by contemporary life necessitates the integration of these disciplinary modules in missions or tasks which may be as widely different as a given country's economic and social development or the exploration of the moon.

8/ See "A look ahead", in Nation's Business (May 1971), p.86.

/21. The

21. The organization of information must perforce take both of these aspects into account, since the discipline or specialty modules must be adapted to the complex missions or tasks that have to be carried out.

22. The second half of the twentieth century is marked by keen awareness of the need to relate fields that have hitherto developed separately. The whole subject is being explored by means of cybernetics, system analysis and research on general systems, with a view to integration.

23. The geographical aspect, that is, the physical location of the centres generating information, is of great significance, since upon it depend the possibilities of access to the various non-instantaneous information channels and, above all, of personal communication, which is still highly important for the transmission of information.

24. Lastly, much importance also attached to the time aspect, since information may equally well relate to the past, the present or the future, all three time dimensions being necessary for the understanding of phenomena and for the exercise of influence on the physical and human environment. For social development purposes, for example, it matters just as much to possess reliable statistics as to formulate projections of population growth, of productivity or of the evolution of science and technology.

25. Documentation centres, whose chief concern is with technical documents of topical interest and with periodicals, are a flexible complement to libraries, whose business is rather to conserve the past which books represent.

26. In view of the increasing speed with which knowledge is generated, the contemporary and projectional aspects of information are steadily becoming more pressingly important, than its purely historical side.

III. NECESSITY AND VIABILITY OF AN INFORMATION NETWORK FOR LATIN AMERICA

27. Latin America comes up against a fundamental difficulty in that no attempt has been made to systematize the economic and social information produced by a wide variety of public and private agencies, albeit this very lack of structure might facilitate the creation of compatible systems with a view to future integration.

/28. Another

28. Another serious handicap is the low level of technological development and the shortage of specialists in the new informational sciences. The technologies of documentation have been developed in highly advanced countries that have placed immense human and material resources at the service of this work - far more than could be mobilized in Latin America over the short term.

29. Serious, too, is the lack of interconnexion among the centres that generate and process information in the region; they can communicate with institutions and centres outside Latin America more easily than with one another.

30. On the other hand, Latin America has an advantage in the shape of its two great language areas - Spanish and Portuguese - which cover most of the countries and inhabitants of the region. This means that considerable economies of scale are possible, as is not the case in Africa or Asia, where there are dozens and even hundreds of local and national tongues with sharply differentiated characteristics.

31. Latin America may easily, therefore, come to constitute a major unit of information flows, alongside those represented by the English- and French-speaking areas.

32. The desirability of establishing information networks for the developing countries, especially those of Latin America, has been discussed at various international meetings. In 1967, for example, in the course of a symposium on the unification of documentation in the developing countries, it was recommended that co-ordinated information systems should be included in all countries' development plans. 9/

33. At the Meeting of Experts on Documentation convened by the ECLA secretariat on 25 and 26 September 1970, to consider the organization of regional information and documentation network and their relation to

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9/ Recommendation 11 of the Symposium held at Bad Godesberg (Federal Republic of Germany) from 28 to 30 November 1967, under the auspices of the Committee for Developing Countries of the International Federation for Documentation (FID/DC), the German Foundation for Developing Countries and the German Society for Documentation.

/the world

the world networks, attention was drawn to the fact that "no country in Latin America has a national documentation centre capable of co-ordinating, maintaining, processing and distributing the basic economic and social information that is so urgently needed" by national and international planning agencies. The Meeting felt that it "is most urgently necessary to establish a documentation centre in Latin America within an international agency responsible under its terms of reference for co-operating in the economic and social development of the region, and to give such a centre full authority to act as the co-ordinating nucleus for a regional information and documentation network covering economic and social affairs".[10/]

34. Another observation made at the Meeting was that "the various United Nations agencies with headquarters or offices in Latin America have not yet been able to develop a co-ordinated system of information and documentation transfer for the various types of users (individuals and agencies) at the national, regional and international levels".[11/]

35. In a working paper on organization of regional networks presented at the same Meeting,[12/] indications were given of preconditions for the system analysis that would have to be carried out on a regional scale to determine which agencies should collect what data, what priorities should be set with regard to data selection, what mechanical system would be suitable for data processing and what kind of contracts and agreements would be required for the organization of the system. This analysis would need to be carried out in close collaboration with the existing

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10/ See F.R.J. Verhoeven, "Feasibility study for the establishment of a regional information, documentation and research centre. Part II: Information annexes", pp.2-3.

11/ Ibidem, p.4.

12/ See Freiherr von Ledebur, "Working paper on organization of regional networks of information and documentation and their relation to the world networks" (Meeting of Experts on Documentation, Santiago, Chile, 25-26 September 1970), p.3.

/national and

national and international documentation and information centre. The paper in question also incorporated the recommendations for the organization of an information and documentation network drawn up by a working Group of the Committee for Developing Countries of the International Federation for Documentation (FID/DC). 13/

36. Recently, at the fourteenth session of ECLA, one of the subjects of discussion was the problem of information and documentation in Latin America, and a consensus was approved in which the regional structures of the United Nations were considered, in particular the structure for economic and social information and documentation. It was agreed that the Latin American Centre for Economic and Social Documentation (CLADES) set up in the ECLA secretariat would promote the establishment of national documentation centres and would endeavour to establish a system for the interchange of information between those centres which, among other things, would be of service for the appraisal of the region's economic and social progress during the Second Development Decade. 14/

37. In other documents presented at the fourteenth session similar emphasis is placed on the need for regional information networks to be established without delay. 15/

38. At the same session ECLA adopted resolution 303 (XIV) on economic and social documentation, in which the Commission stresses the need for the Latin American countries to have up-to-date national systems of economic, social, scientific, statistical and technological information and recommends that the Governments should help to strengthen the CLADES regional documentation system which has been set up within ECLA. 16/

13/ Ibidem, pp. 7-13: recommendations made in the first draft of a "Study on national structures for documentation and library services in countries with different levels of development, with particular reference to the needs of developing countries".

14/ See "Draft annual report" (E/CN.12/867/Rev.1), p.109.

15/ See the following documents: "Background, organization and programmes of the Latin American Centre for Economic and Social documentation" (E/CN.12/899); "ECLA's future role in the rationalization of the regional structures of the United Nations" (E/CN.12/895), pp. 29-32; and "The human environment in Latin America" (E/CN.12/898), pp. 16-17.

16/ "Draft annual report", op.cit., p. 137.

IV. INFORMATION NETWORKS IN LATIN AMERICA AND NATIONAL CO-ORDINATING CENTRES

39. Generally speaking, the Latin American Governments participate in the information networks organized in connexion with highly technical intergovernmental agencies, such as those of the World Meteorological Organization (WMO) and the International Telecommunications Union (ITU), not to mention the network of the International Atomic Energy Agency (IAEA), which covers those Latin American countries that have made most progress in this sphere.

40. However, there are no real internal networks at the national level. It is true that a start has recently been made on the establishment of co-ordinating centres for scientific and technological information, [17] but they generally pay only marginal attention to economic and social matters; this constitutes a serious lacuna, since, in the last analysis, it is the interaction between economic and social factors and scientific and technological progress that determines national development.

41. At the present time, national sources of information are dispersed in innumerable generating agencies, libraries, and documentation centres, access to which is a complex and difficult matter. [18] It is therefore urgently necessary to organize national centres for the co-ordination of economic and social documentation, either within such key agencies as the Office of the Prime Minister or the planning offices, or integrated with the scientific and technological information centres.

42. The functions of the national co-ordinating centre might include the following:

17/ For instance, the system under study by Chile's National Information and Documentation Centre (CENID), which has assumed the role of a co-ordinating centre for a future national system of information and documentation (SIDOC/CHILE). This latter will be an integral part of the over-all national system for science and technology.

18/ In Brazil alone there are 808 specialized libraries, according to Bibliotecas Especializadas Brasileiras (Instituto Brasileiro de Bibliografía e Documentação) (IBBD , Rio de Janeiro, 1969).

/(a) To

(a) To promote the standardization and compatibility of documentation systems, by disseminating basic norms for cataloguing, indexing and summarizing, and also for the reproduction and diffusion of information;

(b) To draw up inventories of national sources of information and documentation;

(c) To co-ordinate acquisition policy, especially in the case of costly works of reference and, where occasion arises, publications on microfiches, magnetic tape or other supports based on advanced technologies;

(d) To prepare collective national catalogues, especially of periodicals, classified by subjects;

(e) To distribute bibliographical lists and lists of articles and periodicals, and to make synopses of important articles and other works; and

(f) To construct national registers of specialists and of persons responsible for supplying information in relation to the various disciplines.

43. The national co-ordinating centre should also advise the government concerned on national information policy and provide internal technical assistance, either on its own account or in conjunction with international agencies, in the spheres of information and documentation.

44. The establishment of data banks, of a national translation service and of advanced training centres for specialized documentalists might also be functions of the national centre or centres, together with research in the field of information sciences.

V. COMPONENTS OF A REGIONAL NETWORK AND THEIR FUNCTIONS

45. In principle, the sole components of a regional network should be national centres for the co-ordination of economic, social, statistical, scientific and technological documentation and information. Such a state of affairs, however, is still a very long way off, even in the most developed countries, so that a regional centre will have to maintain relations with a large number of information-producing centres, both at the national and at the international level, and in the public and private sectors alike. Presumably, as the organization of national centres and networks makes headway, it will be possible to reduce the number of

/direct connexions

direct connexions between the regional centre and the documentation centres pertaining to Ministries, universities, enterprises, libraries, research institutes and other national agencies, with the consequent substantial economies of scale.

46. Given the magnitude of the volume of scientific and technological information on the one hand, and economic and social information on the other, it is thought desirable that a division of labour between the two fields should be adopted, in accordance with the model proposed in the Jackson report. 19/

Participating centres and institutions

47. The following should be the functions of the centres participating in the regional network:

(a) To report to the regional agency on the sources generating information and documentation within each country in the economic and social fields;

(b) To prepare and transmit to the regional institution lists of primary and secondary documentation and information in their respective fields, for centralization at the regional level;

(c) To pass on to the regional centre data relating to projects in the field of information, establishment of new centres, mechanization of existing centres, etc.;

(d) Whenever possible, to send lists of library headings or copies of catalogue cards, with a view to the compilation of collective regional lists and catalogues;

(e) To exchange experiences so that once the data have been processed by the regional centre they can be used throughou the network.

Regional co-ordinating centre

48. In general terms, a Latin American centre for economic and social information and documentation should perform, on a regional scale, the functions listed below.

19/ A Study of the Capacity of the United Nations Development System, vols. I and II (United Nations publication DP/5, Geneva, 1969).

/49. Standardization

49. Standardization

Formulation of methodological recommendations designed to promote standardization in the following respects:

(a) Classification, cataloguing and indexing systems;

(b) Preparation of indexes and catalogues, acquisition material, bibliographic and synopsis work sheets, microfiches, computer programmes and other material (United Nations and ISO norms);

(c) Input, processing and output techniques and formats for the electronic retrieval of information (ANSI norms);

(d) Terminology, subject headings and techniques for the preparation of descriptors and thesauri (United Nations countries code, UNESCO norms and co-ordination of existing material);

(e) Level of training of documentalists;

50. Centralization of information

(a) Establishment of archives and registers containing information on institutions, personnel and equipment connected with information and documentation in Latin America;

(b) Formation of a Latin American reference library by the systematic acquisition of basic sources of documentation in the various countries (basic laws, censuses, development plans, annuals, economic surveys, official newspapers or gazettes, collections of legal and parliamentary documents, administrative reports, annual budgets, university curricula in economics and social sciences, plans and guidebooks, telephone directories and specific provincial and regional documents);

(c) Acquisition and exchange of documents not easily accessible, for example, reports issued for limited distribution;

(d) Acquisition and exchange of microfiches and computer tapes containing economic and social information of interest for Latin America;

51. Co-ordination

(a) Establishment of relations with other information networks at the national, regional and world levels;

(b) Conclusion of agreements on division of labour with respect to information and documentation and to conservation of collections of documents, in order to obviate unnecessary duplication;

/(c) Carrying-out

(c) Carrying-out of surveys to determine profiles of centres;

(d) Exchange of experience among components of networks;

(e) Advisory and technical assistance activities;

52. Distribution of information and acceleration of its interchange

(a) Dissemination of information by means of publications, news bulletins, etc.;

(b) Adoption of measures to promote transmission of summaries, tables of contents and proofs prior to the publication of works of great economic and social interest;

(c) Preparation of lists of research projects under way;

53. Training

Co-operation with other agencies in the training of documentalists specializing in economic and social affairs.

Working agreement between centres

54. The centres participating in the network would have to establish an agreement under which they pledge themselves to exchange or transmit information.

55. Generally speaking, such processes of exchange or transmission may take the following forms:

(a) Total exchange

This would be an extreme case, in which the whole of one centre's information was also on hand in another centre, for geographical or other reasons. Such a situation will doubtless be hardly likely to arise in practice, but from the theoretical standpoint it should be taken into account.

(b) Partial exchange

This will probably be the alternative of most common occurrence, and may be defined as the exchange of a specific subset of information which is of particular interest to the centres concerned. Such exchanges seem likely to take place most frequently between regional centres or between regional and world centres. To give an illustration, if n or p, for example, are subsets of documents which are to be found in centres A and B, respectively, and each of which is of interest to the other institution, centre A will transmit subset n to centre B and centre B, in its turn, will send its own subset p to centre A.

/(c) Transmission

(c) Transmission of primary information and reception of processed information

This will be the type of relation maintained between specialized centres and national centres, and between all these and regional centres. The national or specialized centre X sends the information generated or collected by it to centre A, which in its turn passes over to centre X special bibliographical bulletins, summaries or other similar types of secondary information;

(d) Unilateral transmission of information

In this case the unit or centre handing on the information is interested only in disseminating it and not in receiving any other information in exchange.

The future world network

56. No co-ordinating centre exists as yet at the world level, although the UNESCO/ICSU/UNISIST project [20] constitutes a first attempt at establishing a system of scientific and technological information and documentation on a world scale. The United Nations would seem to be the appropriate organization to set up a world co-ordinating centre at the economic and social level.

57. The networks that do exist at present - such as WMO's world weather observation network, in which every day about 8,000 stations, 3,000 aircraft and 4,000 ships transmit 100,000 weather observations for the surface of the earth and 10,000 observations relating to the upper air - [21] bear witness to what can be done by means of international co-operation. Nevertheless, the systems developed or projected by WMO, IAEA, the ILO, FAO and other international organizations are hardly interconnected with one another at all: a state of affairs which must be remedied if a real integrated world network is to be set up.

20/ UNESCO is publishing a series of studies and reports on the UNISIST system, including a useful synopsis of the feasibility study for a world system of scientific information (UNESCO/UNISIST/3, Paris, 1971).

21/ Everyman's United Nations (United Nations, New York, 1969).

/APPENDIX

APPENDIX

Diagram of relations between national, regional and world centres

Various types of possible relations between national, regional and world centres are expressed diagrammatically in the chart presented below.

Horizontally, the chart is divided into three areas, the first representing the national level, the second the regional level and the third the world level.

Vertically, it is divided into two fields, one economic and social and the other scientific and technological.

At the national level, the letter N is used to represent hypothetical national co-ordinating centres, which might in the future centralize information in each individual country. It is assumed that there are some countries (such as N_1) that would possess a co-ordinating centre at the economic and social level (represented by a circle) and a centre at the scientific and technological level (represented by a triangle) which would be interrelated. Other countries would possess only one of these national centres, and yet others would have none at all (dotted-line symbols).

Direct relations would be established between such national co-ordinating centres and the national specialized centres represented by the letter P, which at the economic and social level would pertain to Ministries of Economic Affairs, Finance, Social Affairs, etc., national planning offices, university departments of economics and sociology, banks, and other institutions of an economic and social type.

At the scientific and technological level, these national specialized centres would correspond to scientific institutions, such as atomic energy institutes, research institutes working in the fields of physics, chemistry and biology, technological institutes concerned with agricultural, extractive and industrial specialties, laboratories belonging to enterprises, etc.

In the model these specialized centres are related in different ways with the national, regional or world centres, and also have complex interrelationships with one another. In some cases they have no connexion with the national centre but do maintain relations with regional or world centres.

/Because of

Because of the diagrammatic form of presentation adopted here, only a few examples of relationships which may be considered typical are expressed: for instance, the specialized centre Pa would be linked up with the centre P"a in the country Nn and also with its own national centre N_1 and with the regional centre R(B); on the other hand, the centre P"e would not maintain relations with its national centre but would do so with the corresponding regional centre. Besides other relationship patterns, complete isolation is exemplified in the chart in the case of Pq.

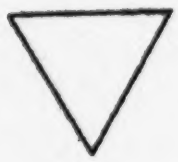
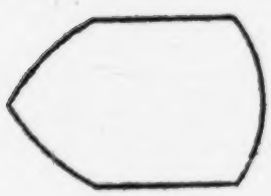
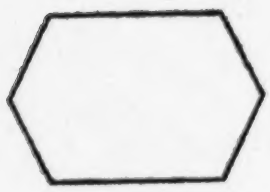
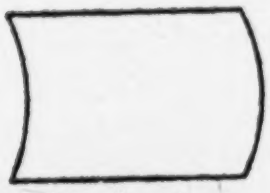
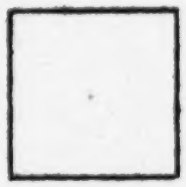
At the <u>regional level</u> there would be regional specialized centres such as R(A), R(B), R(F) and R(N). Cases in point would be centres pertaining to specialized agencies like the ILO and FAO, and to regional organizations such as OAS.

These regional specialized centres, as well as the greatest possible number of national co-ordinating centres and certain national specialized centres, would have to be in contact with the regional co-ordinating centres: R(E-S) in the economic and social sphere, and the future scientific and technological centre, R(C-T). Naturally, the regional centres in the economic and social field and in the field of science and technology should also be closely interrelated, in order to increase their potentialities and obviate duplication of work.

Lastly, at the <u>world level</u>, co-ordinating centres would have to be set up which would cover the economic and social area - M(E-S) - and the scientific and technological area - M(C-T) - and which, in their turn, would maintain relations with other world centres belonging to the specialized agencies of the United Nations family or to any other system: M(A), M(B), M(C), M(N).

This diagram would become less complex as well-organized national co-ordinating centres were established to collect and process the documentation of the national specialized centres concerned. Clearly, however, this must be a long-term task, since at the present time, both in Latin America and in other developing regions, national documentation centres are only just beginning to enter operation or are merely at the project stage.

KEY TO CHART

	Economic and social system (curvilinear symbols)	Scientific and technological system (rectilinear symbols)
National specialized centre		
National co-ordinating centre		
Regional co-ordinating centre (The same symbols in a vertical position represent regional specialized centres)		
World co-ordinating centre		
World specialized centre		

Pa, Pb ..	National specialized centres
N_1, N_2, N_n	National co-ordinating centres
R (A), R(B), R (F), R (N)	Regional specialized centres
R (E - S)	Regional economic and social centre
R (C - T)	Regional scientific and technological centre
M (E - S)	World economic and social centre
M (C - T)	World scientific and technological centre
M (A), M (B), M(C), M (N)	World specialized centres

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* See also Rafael Rodríguez Delgado, "Model of a regional information and documentation network for Latin America" (document presented at the Meeting of Experts on Documentation, Santiago, Chile, 25 and 26 September 1970).

Diagram of relations between national, regional and world centres